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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,882	06/25/2001	David K. Mesecher	1-2-105.1US	1182

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EXAMINER

LY, NGHI H

ART UNIT	PAPER NUMBER
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2686

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/888,882

Applicant(s)

MESECHER ET AL.

Examiner

Nghi H. Ly

Art Unit

2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6 is/are allowed.
- 6) ☒ Claim(s) 7 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/02/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 7 is objected to because of the following informalities:

Regarding claim 7, page 22, line 3, the word "coplaner" should be changed to "coplanar". Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cavelos et al (US 6,121,914) in view of Smith et al (US 5,949,370).

Regarding claim 7, Cavelos teaches a method for interference cancellation for use in conjunction with a base station having a main antenna (see fig.3 and column 2, line 57 to column 3, line 9) for receiving signals from a plurality of remote users (see column 2, lines 57-64, "signal inputs"), wherein at least one interference source is known (see column 3, lines 10-17, the teaching of Cavelos inherently teaches this claimed limitation), comprising the steps of: directing at least one directional antenna toward the at least one interference source (see column 3, lines 10-17, the teaching of Cavelos inherently teaches this claimed limitation) and canceling an interference signal generated by the at least one known interference source (see column 1, lines 9-14 and column 3, lines 10-17).

Cavelos does not specifically disclose each directional antenna having a plurality coplanar feeds that are located one quarter to one half wavelength apart from each other, each coplanar feed for receiving an RF signal.

Smith teaches each directional antenna having a plurality coplanar feeds that are located one quarter to one half wavelength apart from each other, each coplanar feed for receiving an RF signal (see fig.2, items 22 and column 5, lines 53-59. The teaching of Smith inherently teaches this claimed limitation since Smith teaches that "the specific location of the fees 22 is a matter of choice in the design").

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Smith into the system of Calvelos in order to adjust the beam configuration by use of a feed network.

Allowable Subject Matter

5. Claims 1-6 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, Cavelos teaches an interference cancellation system for use in conjunction with a base station having a main antenna for receiving signals from a plurality of remote users, wherein at least one interference source is known, the system comprising: at least one directional antenna directed toward the at least one interference source (see fig.3 and column 2, line 57 to column 3, line 9).

Smith teaches the antenna having a plurality of coplanar feeds that are located one quarter to one half wavelength apart from each other, each coplanar feed for receiving an RF signal (see fig.2, items 22 and column 5, lines 53-59).

Cavelos and Smith, alone or in combination, fails to teach ~~as~~ weighting the RF signals received by the plurality of coplanar feeds to produce a cancellation signal, first summing means for summing the weighted signals using a least mean square (LMS) algorithm, and second summing means for summing the cancellation signal with signals received from the main antenna to produce an output signal substantially free from interference.

Dependent claims 2-6 are allowable for the same reason.

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Claim 8 is objected for the reasons as stated in the previous Office action (dated 0725/2004) page 5.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nghi H. Ly whose telephone number is (703) 605-5164. The examiner can normally be reached on 8:30 am-5:30 pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (703) 305-4379. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nghi H. Ly

NH Ly
12/24/04

Ch Appiah
CHARLES APPIAH
PRIMARY EXAMINER